## REMARKS

Claims 1, 2, 5-7, and 14-15 are rejected under 35 U.S.C. §102(b) as being anticipated by Kewitsch et al. '751. In addition, claims 1, 2, 4-13 and 18 are rejected under 35 U.S.C. §102(b) as being anticipated by Damask et al. '051.

The Examiner's rejections are respectfully traversed.

Independent claim 1 has now been amended to recite a large bandwidth add-drop filter for a planar waveguide device. The device has at least two waveguides connected to the input and output coupling structures. The at least two waveguides have a superstructure and superperiod photonic band-gap grating, including variations of grating amplitude and grating phase and grating periodicity, wherein the photonic band-gap grating covers the spectral range of optical frequencies added or dropped by the filter. The filter provides at least one pole and at least one zero at a frequency within the spectral range.

Kewitsch et al. '751 describes a grating assisted directional coupler. It will be understood by those of skill in the art that a grating assisted directional coupler is fundamentally different than the device being claimed in the present application. Kewitsch et al. '751 simply does not describe or suggest a coupler receiving an input signal and providing an output signal, and grating waveguides with superstructure and superperiod having a photonic band-gap covering at least four optical channels.

The devices proposed by Kewitsch et al. are, in all practical purposes, limited to narrow spectral range due to the limitations of photo-induced changes of refractive index in

Germanium, Boron, or Fluorine fibers. The refractive index changes in these gratings are typically limited to $n=0.1\%$. It will be understood by someone of ordinary skill in the art that such gratings can only reflect light over a small spectral range, as is usual for fiber Bragg gratings.

In addition, The devices proposed by Damask et al. do not provide add-drop functionality over a large spectral range since Damask's resonator architecture must satisfy a waveguide-proximity restriction which consists of "an optical path length along the first center waveguide of an integral multiple of half-resonant wavelengths plus one quarter resonant wavelength". Such harmonic condition is a necessary condition of Damask et al.'s filter functionality by virtue of the coherent feedback coupling between the said two resonators. It will be understood by someone of ordinary skill in the art that Damask et al.'s strict proximity conditions imposed on the resonator optical path lengths can be achieved only at a specific optical wavelength and that this condition is not achievable over a large spectral range.

In sum, Applicant contends that fundamental aspects of the invention are simply not addressed by Kewitsch et al. '751 and Damask et al. '051.

The invention uses an input coupling structure and an output coupling structure. This, in and of itself, should be sufficient to differentiate the invention from Kewitsch et al. '751. The invention also uses at least two waveguides with resonators (or frequency poles) between said input and output coupling structures. Damask et al. '051 does not. Again, Applicant contends that this should be sufficient to differentiate the invention from Damask et al. '051. Instead, Damask et al. '051 uses a totally different architecture in virtue of the fact that the waveguides must satisfy a waveguide-proximity restriction, and does not have an input

coupling structure and an output coupling structure connected to at least two waveguides with gratings providing at least one zero and one pole in the frequency range of operation.

In accordance with the foregoing comments, it will be appreciated that neither Kewitsch et al. '751 nor Damask et al. '051 anticipate the invention under the provisions of 35 U.S.C. §102. Accordingly, Applicant's submit that claims 1, 2, and 4-15 are patentable over the prior art of record.

The application is now considered to be in condition for allowance, and an early indication of same is earnestly requested.

Respectfully submitted,

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